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Developing a Routine Method for the Analysis of Nasal Mucus.

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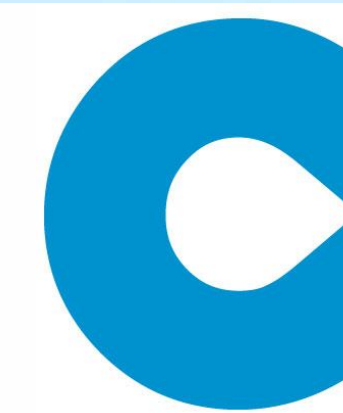
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1 Objectives

If there were tests on nasal mucus, equivalent to the venous blood sample, the knowledge and clinical gain would be significant. No such test is in routine use.

2 Method

Healthy volunteers had nasal mucus passively collected from the nose for 15 minutes without local anaesthesia (Figure 1). On one side an inert plastic splint was used, on the other simple cotton wool. The splint was a standard 42 mm silastic blue nasal splint (Exmoor Plastics), the cotton wool varied in weight from 120 to 300 mg. We measured the yield by weight of mucus on each side. The participant experience is reported in a sister paper.

3 Figure 1

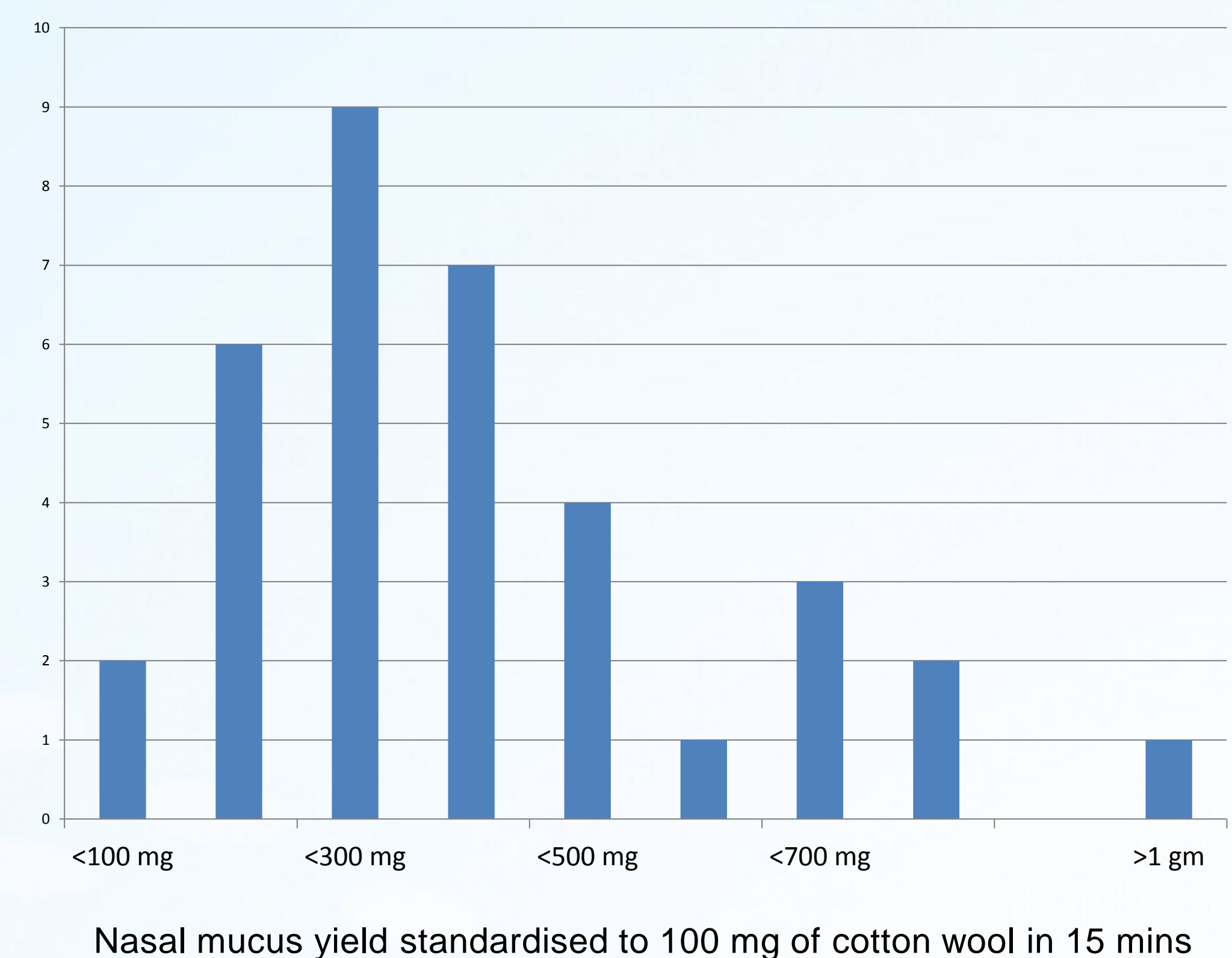


Participant During Mucus Collection

4 Results

36 subjects have been tested, of whom all 36 tolerated the cotton wool, but only 32 tolerated the plastic splint. The average yield of mucus onto the splint was 190 mg (SD 110 mg, range 80-460 mg), and onto cotton wool was 500 mg (SD 350 mg, range 110 mg - 1.52 gm).

Figure 2



6 Discussion

The plastic splint tended to be problematic, not only due to pain, but also with mucus failing to adhere easily, and falling off on removal. Standardising for 100mg of cotton wool in 15 minutes gave an average yield of 324 mg (SD 176 mg, range 80 - 1340 mg/15 mins). See Figure 1. The sub-group of subjects with much higher yields, giving a second peak, were apparently those with hay fever/ allergic rhinitis, but were tested out of season. No dedicated allergy testing was undertaken.

The analytic and diagnostic options with nasal mucus will vary with the amount collected, and how dilute it is. Previous approaches have either relied on collection onto paper strips followed by elution (1,2) or collecting saline after irrigation of the nasal cavity (3). Neither is an accurate quantitative method, suitable for diagnostics. These studies also attest to the great variation in nasal mucus production between individuals.

Conclusions

Using inert plastic splints to collect native nasal mucus is unlikely to be practical without dedicated design work. The rate of nasal mucus production has at least a 9-fold range. Analysis of nasal mucus chemistry may require a soft, absorbent matrix, and then secondary separation before testing, if it is to become practical and routine.

References

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